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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DONALD E. MOSING, DAVID L. SIPOS, and
JEREMY R. ANGELLE

Appeal 2008-1174
Application 10/690,920
Technology Center 3600

Decided: August 26, 2008

Before WILLIAM F. PATE, III, JENNIFER D. BAHR, and JOSEPH A. FISCHETTI, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Donald E. Mosing et al. (the Appellants) appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-7, 10, 12-15, 17-21, 23, 26, 28, 29, 32-39, 51, 54, 56-58, 60, 61, 63-66, 69, 72, and 73, which are the only pending claims. We have jurisdiction over this appeal under 35

U.S.C. § 6 (2002). The Appellants' counsel presented oral argument on August 12, 2008.

The Invention

The Appellants' claimed invention is directed to assembling pipe strings by use of interrupted or slotted threads by which a small partial turn of one pipe portion relative to the other pipe portion completes the connection (Specification 1:7-9). Claims 1 and 23 are illustrative of the claimed invention and read as follows:

> 1. A connection for assembly of pipe, the connection comprising:
>
> a first pipe having a female end;
>
> a second pipe having a male end;
>
> said female end having an inner surface, an internal annular shoulder, a nose face and an outer surface;
>
> said male end having an inner surface, an external annular shoulder, a nose face and an outer surface;
>
> a first plurality of protuberances circumferentially and longitudinally spaced relative to each other about the inner surface of said female end;
>
> a second plurality of protuberances circumferentially and longitudinally spaced relative to each other about the outer surface of said male end;
>
> wherein said circumferential spacing forms a circumferential array comprising at least one longitudinal column on both the inner surface of said female end and the outer surface of said male end;

said internal annular shoulder and said external annular shoulder being each shaped so as for each said internal shoulder and each said external shoulder to receive a mating nose face, wherein at least one said internal shoulder and/or external shoulder and its corresponding mating nose face are shaped to substantially entrap said nose face within the shoulder to substantially restrain radial movement;

said plurality of circumferential arrays aligned such that said plurality of protuberances are accepted by a mating pipe end when said male and female pipe ends move longitudinally relative to each other for forming a connection,

wherein the male and female ends engage upon any rotation of one pipe relative to the other pipe wherein such rotation causes said protuberances of the male end and said protuberances of the female end to move circumferentially with respect to each other, and wherein the nose face of the male end engages the internal annular shoulder of the female end and the nose face of the female end engages the external annular shoulder of the male end such that compressive loads on the male end and the female end are borne substantially by the shoulders; and

at least one and/or both of said first and second protuberances embodies at least one interference dimension that causes the protuberance to displace a mating protuberance surface.

23. A connection for assembly of pipe, the connection comprising:

a first pipe having a female end;

a second pipe having a male end;

said female end having an inner surface and an outer surface;

said male end having an inner surface and an outer surface;

a first plurality of protuberances circumferentially and longitudinally spaced relative to each other about the inner surface of said female end;

a second plurality of protuberances circumferentially and longitudinally spaced relative to each other about the outer surface of said male end;

wherein said circumferential spacing forms a circumferential array comprising at least one longitudinal column on both the inner surface of said female end and the outer surface of said male end;

said plurality of circumferential arrays aligned such that said plurality of protuberances are accepted by a mating pipe end when said male and female pipe ends move longitudinally relative to each other for forming a connection; and

wherein the male and female ends engage upon any rotation of one pipe relative to the other pipe wherein such rotation causes said protuberances of the male end and said protuberances of the female end to move circumferentially with respect to each other; and

a first abutting surface on said first pipe end arranged to oppose and mate with a second abutting surface on said second pipe end and a first abutting surface on said second pipe end arranged to oppose and mate with a second abutting surface on said first pipe end when the arrays of protuberances on the male end are substantially juxtaposed with the arrays of protuberances on the

> female end, wherein said first abutting surfaces and said second abutting surfaces are distinct from surfaces of said protuberances, and wherein at least one of said first abutting surfaces and its corresponding second abutting surface are shaped to substantially entrap said mating second abutting surface within its corresponding mated first abutment surface to substantially restrain radial movement, and further wherein said first abutting surfaces and said second abutting surfaces are pulled into contact, with each other by engagement of the male and female protuberances upon said rotation of one pipe relative to the other pipe.

The Rejections

The Examiner relies upon the following as evidence of unpatentability:

Wilson	US 1,507,877	Sep. 9, 1924
McCaskill	US 4,185,856	Jan. 29, 1980
Wood	US 5,709,416	Jan. 20, 1998
Kamp	US 6,283,511 B1	Sep. 4, 2001

The following rejections are before us for review.

(1) Claims 1, 4, 5, 7, 10, 12, 14, 18, 20, 23, 26, 29, 34, 35, 37, 39, 51, 54, 60, 61, 63, 69, 72, and 73 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wilson in view of Wood.

(2) Claims 1-5, 7, 10, 12-15, 17-21, 23, 26, 28, 29, 32-39, 51, 54, 56-58, 60, 61, 63-66, 69, 72, and 73 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kamp in view of Wood.

(3) Claims 1, 4-6, 12-14, and 37-39 stand rejected under 35 U.S.C. § 103(a) as unpatentable over McCaskill in view of Wood.

OPINION

With respect to each of rejections (1) through (3), the Appellants present arguments directed to each of the independent claims so rejected. The Appellants have not presented any separate arguments to the dependent claims. Therefore, in accordance with 37 C.F.R. § 41.37(c)(1)(vii) (2007), in deciding the appeal of each of the rejections, we separately consider each of the independent claims, with each dependent claim standing or falling with the independent claim from which it depends. Accordingly, at issue in this appeal is whether the Appellants' arguments persuade us that the Examiner erred in rejecting the independent claims.

Rejection (1)

Wilson discloses a tool joint comprising a first member 10 having a pin portion 18 and a second member in the form of box 14 provided with a tapering seat 19 for receiving the pin (p. 1, ll. 70-86). The pin 18 is provided with mutilated threads 20 arranged in panels occupying approximately one quarter of the area of the pin, with gaps provided between the panels (p. 1, ll. 83-92). The seat 19 is provided with mutilated threads 21 formed into panels having substantially the same width as the gaps between the threads of the pin so that the joint may be coupled by inserting the pin into the seat and merely giving member 10 a quarter turn (p. 1, l. 107 to p. 2, l. 8). The bottom of seat 19 is provided with continuous threads 22 to guide the blunt ends of the threads 20 between the threads 21 (p. 2, ll. 9-20; fig. 4). When the pin is given a quarter turn, "the threads 20 will ride into the threads 21 smoothly and easily" (p. 2, ll. 27-29).

Wilson's first member 10 is provided with an external shoulder 25 and a nose face (beveled end 23) (p. 2, ll. 20-21 and 34; fig. 1). Wilson's

box 14 is provided with an internal shoulder 24 and a nose face (finished upper surface 26) (p. 2, ll. 35-36; fig. 1). Upon rotation of the pin to engage the threads, beveled end 23 of pin 18 engages with shoulder 24 of box 14, and shoulder 25 of member 10 comes to rest on finished upper surface 26 of box 14 (p. 2, ll. 29-37).

Wilson provides no teaching as to how compressive loads applied to members 10 and 14 would be distributed and transmitted. We find Wilson's reference to a "bearing surface" (p. 1, ll. 105-106) of a thread relates to thread bearing surfaces of the threads during coupling of the joint, not necessarily for bearing compressive forces applied to the pin and box members of the joint.

Wilson provides no teaching that the threads of the pin and seat are dimensioned to interfere with one another so as to displace a thread surface of either the pin or the seat.

Wood teaches use of a mortise 14 in the base of a threaded seat of a box member 9 for mating with a tenon 16 on the distal face of a pin section 12 and a tenon 16 on the nose face of the box member 9 for mating with a mortise 15 on the external shoulder of the pin section 12 (col. 3, l. 56 to col. 4, l. 9; figs. 1-3). The tapered surfaces of the mortises and tenons are load bearing surfaces (col. 2, ll. 21-22; col. 3, ll. 56-60; col. 4, ll. 3-7). The mortises and tenons couple together to prevent axial motion of the coupling (col. 3, ll. 60-62; col. 4, ll. 7-9). The unique shape of Wood's mortise and tenon elements also eliminates the need for additional sealing means between pipe sections (col. 2, ll. 23-25). The coupling of the box mortise 14 with the pin mortise 16 occurs during the last infinitesimal turn of the pin on the box (col. 3, ll. 60-63).

Wood discusses undercut surfaces on the threads designed to function as load bearing surfaces to eliminate or reverse axial forces present in threaded couplings in order to keep the joint together (col. 3, l. 65 to col. 4, l. 2; col. 4, ll. 9-22).

The Appellants do not dispute the Examiner's determination that it would have been obvious to configure the abutment surfaces of the male and female portions of Wilson's pipe joint to entrap the corresponding abutment surfaces of the other of the male and female portions as taught by Wood "to provide proper compression loading and to eliminate movements to separate the joint" (Answer[1] 4-5).

With respect to independent claim 1, the Appellants argue, *inter alia*, that both Wilson and Wood teach arrangements wherein the threads actually bear the compressive load (Appeal Br.[2] 18). We understand this to be an argument that Wilson and Wood lack a teaching that the nose face of the male portion engages the shoulder of the female portion and the nose face of the female portion engages the shoulder of the male portion such that compressive loads on the male and female portions "are borne substantially by the shoulders," as called for in claim 1. For the following reason, we find this argument persuasive of error in the Examiner's rejection.

Rejections based on 35 U.S.C. § 103 must rest on a factual basis. In making such a rejection, the examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. *In re Warner*, 379

[1] We refer in this opinion to the Examiner's Answer, mailed March 6, 2007.
[2] We refer in this opinion to the Appeal Brief, filed December 21, 2006.

F.2d 1011, 1017 (CCPA 1967). As noted in our findings above, neither Wilson nor Wood provides any explicit teaching of how compressive forces would be distributed in the pipe couplings. Nor has the Examiner explained where support is found in either Wilson or Wood that compressive forces on the ends of the coupling will be borne substantially by the shoulders, rather than by the threads.

Moreover, the Appellants also argue that neither Wilson nor Wood teaches interference between the protuberances (threads) of the coupling that causes displacement of a protuberance surface (Appeal Br. 18-19; Reply Br.[3] 2-3). In response, the Examiner merely points out that Wilson teaches protuberance 21 on a female pipe end 14 and protuberances 20 on a male pipe end and that the protuberances are discontinuous (Answer 8-9). The Examiner does not point to any teaching in either Wilson or Wood of interference between the threads so as to cause displacement of a thread surface. Indeed, as pointed out by the Appellants on page 2 of the Reply Brief and noted in our findings above, Wilson characterizes the threads 20 as riding into the threads 21 "smoothly and easily." We find no indication in either Wilson or Wood of interfering threads causing displacement of a thread surface. We thus conclude that the Appellants' argument demonstrates error in the Examiner's rejection.

For the above reasons, we do not sustain the Examiner's rejection of claim 1 or claims 4, 5, 7, 10, 12, 14, 18, and 20 that depend from claim 1 as unpatentable over Wilson in view of Wood.

With respect to independent claim 23, the Appellants argue that neither Wilson nor Wood teaches that the abutting surfaces are distinct from

[3] We refer in this opinion to the Reply Brief, filed May 7, 2007.

the surfaces of the threads (Appeal Br. 19). This argument appears to be directed to the limitation in claim 23 that "said first abutting surfaces and said second abutting surfaces are distinct from surfaces of said protuberances." The Appellants' position is not well founded. Wilson's shoulders 25 and 24 and beveled end 23 and finished upper surface 26, which correspond to the claimed first and second abutting surfaces, are distinct from the threads 20 and 21, which correspond to the claimed "protuberances."

The Appellants additionally argue that neither Wilson nor Wood teaches that the first and second abutting surfaces are shaped so as to entrap an abutting surface to restrain radial movement (Reply Br. 3). The engagement of the tapered load bearing surfaces of the mortises and tenons taught by Wood reasonably appears to establish an entrapment that restrains radial movement, and the Appellants have not explained why this would not be the case. The Appellants' argument thus does not persuade us of error in the Examiner's rejection of claim 23 as unpatentable over Wilson in view of Wood. The rejection of claim 23 and claims 26, 29, 34, and 35, which stand or fall with claim 23, is sustained.

With respect to independent claim 37, the Appellants argue that neither Wilson nor Wood teaches that compressive loads on the male and female ends are borne substantially by the corresponding mating shoulder (Appeal Br. 20; Reply Br. 3). This argument is persuasive of error in the Examiner's rejection. As explained above in our discussion of the rejection of claim 1, neither Wilson nor Wood provides any explicit teaching of how compressive forces would be distributed in the pipe couplings. Nor has the Examiner explained where support is found in either Wilson or Wood that

compressive forces on the ends of the coupling will be borne substantially by the shoulders, rather than by the threads. Consequently, we cannot sustain the rejection of claim 37 and claim 39, which depends from claim 37, as unpatentable over Wilson in view of Wood.

With respect to independent claim 51, the Appellants argue that neither Wilson nor Wood teaches that the mating of the pipe ends pulls the abutting surfaces together, that the abutting surfaces are distinct from the threads, and that the mated abutting surfaces are substantially restrained from radial movement (Appeal Br. 20; Reply Br. 4). None of these arguments is persuasive. As noted in our findings above, Wilson explicitly teaches that rotation of the pin to engage the threads causes beveled end 23 of pin 18 to engage with shoulder 24 of box 14 and shoulder 25 of member 10 to come to rest on finished upper surface 26 of box 14. Further, the abutting surfaces, namely, shoulders 24 and 25, beveled end 23, and finished upper surface 26, of Wilson are distinct from threads 20 and 21. Finally, as discussed above in our discussion of the rejection of claim 23, the engagement of the tapered load bearing surfaces of the mortises and tenons taught by Wood reasonably appears to establish an entrapment that restrains radial movement, and the Appellants have not explained why this would not be the case. Inasmuch as we do not find any of the Appellants' arguments directed to claim 51 persuasive, we sustain the rejection of claim 51, as well as claims 54, 60, 61, and 63, which stand or fall with claim 51, as unpatentable over Wilson in view of Wood.

With respect to claim 69, the Appellants incorporate from their discussion of claim 1 the argument that Wilson and Wood do not teach that at least one of the protuberances (an incomplete thread) embodies at least

one interference dimension that causes the protuberance to displace a mating protuberance surface (Appeal Br. 18-19 and 20). The Appellants further argue that Wilson and Wood do not teach that one incomplete thread will displace a mating incomplete thread by a preselected amount (Appeal Br. 20). We agree with the Appellants. As noted above in our discussion of the rejection of claim 1, we find no indication in either Wilson or Wood of interfering threads causing displacement of a thread surface. We likewise find no teaching in either reference that one incomplete thread will displace a mating incomplete thread. On the contrary, as noted in our findings above, Wilson teaches that the bottom of seat 19 is provided with continuous threads 22 to guide the blunt ends of the threads 20 between the threads 21 such that when the pin is given a quarter turn, "the threads 20 will ride into the threads 21 smoothly and easily." Therefore, we cannot sustain the rejection of claim 69 or claims 72 and 73, which depend from claim 69, as unpatentable over Wilson in view of Wood.

Rejection (2)

Kamp teaches a pipe coupling for coupling pipes to be used in subterranean drilling (col. 1, ll. 4-8). Kamp's coupling includes a first coupling member 1 and a second coupling member 51 (col. 5, ll. 45-47). First coupling member 1 has a base portion 2 and a pin portion 3 (col. 5, ll. 52-53). The pin 3 is provided with three axially extending columns 4, 5, 6 of teeth 20-28 separated by slots (col. 5, ll. 62-63 and col. 6, ll. 6-8). Second coupling member 51 has a housing 52 provided with a box 53 (col. 6, ll. 19-21). The box 53 carries three axially extending columns of teeth 70-78 (col. 6, ll. 21-23).

To connect the coupling of Kamp, pin 3 is inserted into box 53 until the shoulder 7 at the base of pin 3 meets the sealing face 57 around the open end of box 53 (col. 6, ll. 58-60). The pin 3 is subsequently rotated to engage the teeth 20-28 of the pin with the counter teeth 70-78 of the box 53 (col. 6, ll. 61-64). The insertion and rotation thus causes abutment of one external shoulder of the pin 3 and one nose face (the sealing face 57).

Kamp achieves pre-tensioning of the coupling by compressing the shoulder 7 and the sealing face 57 by pulling the pin 3 into the box 53 and accordingly compressing the walls of box 53 (col. 7, ll. 24-32). Kamp also discusses elastic deformation of the teeth during engagement of the teeth (col. 10, ll. 24-29).

Kamp also contemplates an embodiment in which, in addition to the single seal at the base of the pin 3 by contact of shoulder 7 with the sealing face 57, a second seal is provided by pressing the distal end of pin 3 in sealing contact with a shoulder of the box 53 (col. 7, ll. 54-57). Kamp thus teaches the double abutting shoulder arrangement required, for example, in claim 1.

As best illustrated in Figures 1 and 2 of Kamp, the lowermost teeth of the pin 3 and box 53 are provided with abutment surfaces 35 and 85, respectively, that contact each other when the coupling members have reached their coupled condition to limit mutual rotation of the coupling members beyond a predetermined configuration (col. 10, ll. 51-53; col. 11, ll. 1-5). The abutment surfaces 35, 85 are positioned such that a predetermined amount of axial pre-tension is obtained when the abutment surfaces 35, 85 meet to complete the coupling (col. 11, ll. 48-51).

The Examiner finds that Kamp fails to disclose that the abutment surface 7 of the male end entraps the abutment surface 57 of the female end (Answer 6). The Examiner contends, however, that it would have been obvious to configure the abutment surfaces of the male and female ends of Kamp to entrap the other of the abutment surfaces of the male and female ends as taught by Wood, to provide proper compression loading and to eliminate movements to separate the joint. *Id.* Each of the Appellants' independent claims requires at least one abutment surface of one of the coupling members to substantially entrap a mating abutment surface of the other coupling member.

The Appellants argue that there would be no motivation to combine the mortise and tenon teachings of Wood with Kamp (Appeal Br. 21). The Appellants reason that the tenon/mortise design of Kamp, which relies on turning until coupled, and Kamp's rotational stop (abutment surfaces 35, 85) are not adaptable to each other. Specifically, the Appellants argue that the positive rotational stop of Kamp possibly would prevent the complete coupling required by the teachings of Wood, thus destroying the purpose of Wood. *Id.*

The Appellants' position is not well founded. As noted in our findings above, Kamp expressly teaches that the abutment surfaces 35, 85 do not contact until the shoulder 7 at the base of pin 3 contacts the sealing face 57 and the pin 3 is rotated relative to the box 53 to complete the coupling. "A person of ordinary skill is also a person of ordinary creativity, not an automaton." *KSR Int'l. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1742 (2007). Thus, in accordance with Kamp's teachings and those of Wood, a person of ordinary skill in the art would understand that the abutment surfaces 35, 85

should be positioned such that they do not contact until the tapered load bearing surfaces of the mortise and tenon have coupled together to secure the joint parts against separation forces.

As for the Appellants' argument regarding lack of motivation to combine the mortise and tenon teachings of Wood with Kamp, we note that while the requirement of demonstrating a teaching, suggestion, or motivation (the TSM test established by the Court of Customs and Patent Appeals) to combine known elements in order to show that the combination is obvious may be "a helpful insight," it cannot be used as a rigid and mandatory formula. *Id.* at 1741. While there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness, "the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* "[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill." *Id.* at 1740. In this instance, a person of ordinary skill in the art would have appreciated from the teachings of Wood that provision of a mortise and tenon at least in the shoulder 7 and sealing face 57 of Kamp would provide the same benefits in Kamp's coupling, namely, to prevent axial motion of the coupling and to eliminate the need for additional sealing means between the pipe parts.

In light of the above, the Appellants' arguments that it would not have been obvious to combine the mortise and tenon teachings of Wood with

Kamp are not persuasive. We now turn our attention to the remaining arguments advanced for each of the independent claims.

With respect to independent claims 1 and 37, the Appellants contend that Wood and Kamp do not teach that compressive loads on the male and female ends are borne substantially by the shoulders, rather than the teeth (Appeal Br. 21 and 22). We agree with the Appellants and, further, note that the Examiner has not responded to this argument. Neither Kamp nor Wood provides any explicit teaching of how compressive forces would be distributed in the pipe couplings. Nor has the Examiner explained where support is found in either Kamp or Wood that compressive forces on the ends of the coupling will be borne substantially by the shoulders, rather than by the teeth or threads. Accordingly, we cannot sustain the rejection of independent claims 1 and 37, claims 2-5, 7, 10, 12-15, and 17-21, which depend from claim 1, and claims 38 and 39, which depend from claim 37, as unpatentable over Kamp in view of Wood.

With respect to independent claim 23, the Appellants argue that neither Kamp nor Wood teaches that the abutting surfaces are distinct from the surfaces of the threads (Appeal Br. 22). We do not agree with the Appellants. The abutting surfaces of Kamp's pipe coupling, namely, the shoulder 7 and sealing face 57 and, in the embodiment contemplated by Kamp comprising the double seal/double abutting shoulder arrangement discussed in our findings above, the distal end of pin 3 in sealing contact with a shoulder of the box 53, are distinct from the threads 20-28 and 70-78.

The Appellants additionally argue, with respect to claim 23, that neither Wood nor Kamp teaches a first abutting surface and a second abutting surface shaped so as to entrap an abutting surface to restrain radial

movement (Reply Br. 3). We do not agree with the Appellants. As discussed above, we find that Wood's mortise and tenon arrangement creates such an entrapment.

For the above reasons, the Appellants' arguments fail to persuade us the Examiner erred in rejecting claim 23 as unpatentable over Kamp in view of Wood. The rejection of claim 23 and claims 26, 28, 29, and 32-36, which stand or fall with claim 23, is sustained.

In arguing in favor of claim 51, the Appellants repeat the arguments directed to claim 23 and additionally argue that Kamp and Wood do not teach pulling respective abutting surfaces together by mating the respective pipe ends (Appeal Br. 23). This argument likewise is not persuasive. As noted in our findings above, Kamp teaches inserting the pin 3 into box 53 until the shoulder 7 meets the sealing face 57, and rotating the pin 3 relative to box 53 to compress the shoulder 7 and sealing face 57. Moreover, Kamp contemplates an embodiment wherein the distal end of pin 3 is in sealing contact with a shoulder of the box 53, as noted above. We sustain the rejection of claim 51, as well as claims 54, 56-58, 60, 61, and 63-66, which stand or fall with claim 51.

With respect to independent claim 69, the Appellants argue that Kamp and Wood do not teach that the abutment surfaces are distinct from the surfaces of the threads (Appeal Br. 23; Reply Br. 7). This argument is flawed in two respects. First, we find no such limitation in claim 69. It is well established that limitations not appearing in the claims cannot be relied upon for patentability. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982). Moreover, for the reasons discussed above with respect to claim 23, we find

that Kamp does teach abutment surfaces that are distinct from the surfaces of the threads.

The Appellants additionally argue with respect to claim 69 that Kamp and Wood do not teach that the abutting surfaces are shaped so as to entrap a mating shoulder to restrain radial movement (Reply Br. 7). We do not agree with the Appellants, for the reasons discussed above with respect to claim 23.

Finally, the Appellants argue that Kamp and Wood do not teach that one incomplete thread will displace a mating thread by a preselected amount (Appeal Br. 23). We do not agree. As noted in our findings above, Kamp teaches pulling the pin 3 into the box 53 and accordingly compressing the walls of box 53. Kamp also teaches elastic deformation of the teeth during engagement of the teeth.

In light of the above, the Appellants' arguments do not persuade us the Examiner erred in rejecting claim 69 as unpatentable over Kamp in view of Wood. We sustain the rejection of claim 69, as well as claims 72 and 73, which stand or fall with claim 69.

Rejection (3)

McCaskill teaches a pipe joint 50 comprising a male member 60 and a female member 70 (col. 2, ll. 46-49). Male member 60 is provided on its outer circumference with a flange 64 and with groups 66 of spaced apart threads between flange 64 and lower end 62 (col. 3, ll. 10-15). Female member 70 comprises a plurality of groups 76 of spaced apart threads (col. 2, ll. 58-62). Flange 64 of male member 60 is provided at its lower end with stop members 90 that will abut against stop lugs 78 extending upwardly from female member 70, as illustrated in Figure 2, to prevent further relative

rotation of the male and female members in the tightening direction (col. 3, ll. 52-55). Moreover, male member 60 also is provided with one or more movable latches 92 positioned to engage the opposite side of the stop lug 78 when the joint is fully made, to prevent relative rotation of the male and female members in the opposite direction to disconnect the joint (col. 3, ll. 56-61).

The Examiner's rejection of claims 1, 4-6, 12-14, and 37-39 is grounded in part on the Examiner's determination that it would have been obvious to configure the abutment surfaces of the male and female members of McCaskill to entrap the mating abutment surface as taught by Wood, to provide proper compression and to eliminate movements to separate the joint (Answer 8).

We agree with the Appellants that a person of ordinary skill in the art would not have found a reason to modify McCaskill's pipe joint as proposed by the Examiner (Appeal Br. 24). Rather than using an axial abutment of shoulders and nose faces, as in the Appellants' invention and Wood's joint, McCaskill utilizes an arrangement of stop lugs 78, stop members 90, and latches 92 to prevent relative rotation and thus axial separation of the coupling members. Therefore, it is not apparent to us why a person of ordinary skill in the art would have been prompted to provide a mortise and tenon arrangement as taught by Wood on McCaskill's pipe joint. We cannot sustain the Examiner's rejection of claims 1, 4-6, 12-14, and 37-39 as unpatentable over McCaskill in view of Wood.

DECISION

The rejection of claims 1, 4, 5, 7, 10, 12, 14, 18, 20, 23, 26, 29, 34, 35, 37, 39, 51, 54, 60, 61, 63, 69, 72, and 73 as unpatentable over Wilson in view of Wood is affirmed as to claims 23, 26, 29, 34, 35, 51, 54, 60, 61, and 63 and reversed as to claims 1, 4, 5, 7, 10, 12, 14, 18, 20, 37, 39, 69, 72, and 73. The rejection of claims 1-5, 7, 10, 12-15, 17-21, 23, 26, 28, 29, 32-39, 51, 54, 56-58, 60, 61, 63-66, 69, 72, and 73 as unpatentable over Kamp in view of Wood is affirmed as to claims 23, 26, 28, 29, 32-36, 51, 54, 56-58, 60, 61, 63-66, 69, 72, and 73 and reversed as to claims 1-5, 7, 10, 12-15, 17-21, and 37-39. The rejection of claims 1, 4-6, 12-14, and 37-39 as unpatentable over McCaskill in view of Wood is reversed.

In summary, the decision of the Examiner is affirmed as to claims 23, 26, 28, 29, 32-36, 51, 54, 56-58, 60, 61, 63-66, 69, 72, and 73 and reversed as to claims 1-7, 10, 12-15, 17-21, and 37-39.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED-IN-PART

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